The Claims.

What is claimed:

1. A well screen comprising:

a base pipe having openings through the wall thereof ;

an outer surface having a top and having a section mounted over said base pipe, some of said surface of said section being permeable to fluids and abating the flow of particulate material, said outer surface having standoff from said base pipe, to form an annulus between the said base pipe and said outer surface;

at least one section of exit nozzle chambers, said section placed over said base pipe and adjacent to said permeable outer surface section;

at least one shunt tube positioned inside said annulus and secured to the inside of said outer surface and extending axially along said base pipe adjacent to said permeable section of said outer surface;

said section of exit nozzle chambers secured to said outer surface, said nozzle chamber section having multiple exit ports circumferentially spaced around said nozzle chamber section, said exit nozzle chambers being connected to said shunt tube for communicating with the outside of said outer surface of said screen;

an outer member having an interior open to said shunt tube and mounted on said top of said outer surface, and forming an annulus between said outer member and said base pipe with said open interior of said out member facing said shunt tube, permitting fluid flow to said annulus from the interior of said outer member.

2. The well screen of claim 1, wherein there are several permeable sections of said outer surface.

3. The well screen of claim 2, wherein there are further included longitudinal support rods secured to the inside of said outer surface, thereby causing said outer surface to stand off from said base pipe.

4. The well screen of claim 3, wherein said support rods are welded to the inside of said outer surface.

5. The well screen of claim 4, wherein said shunt tube is interspersed with said longitudinal support rods.

6. The well screen of claim 5, wherein said shunt tube is welded to the inside of said outer surface.

7. The well screen of claim 3, wherein said outer surface includes multiple sections of a wire wrapped around said shunt tube and said longitudinal support rods, each wrap of said wire being spaced from the adjacent wraps to create openings between said wraps of wire.

8. The well screen of claim 2, wherein said section of exit nozzle chambers is placed over said base pipe and alternates with sections of said outer surface.

9. The well screen of claim 2 where there is included: a multiple number of said shunt tubes radially spaced around said base pipe within said annulus and extending along said base pipe in said permeable sections of said outer surface and connected to said exit nozzle chamber sections of said outer surface, thereby at least one flow path is established.

10. The well screen of claim 1, wherein said exit ports of nozzle inserts includes material used for erosion abatement.

11. The well screen at claim 1, wherein said exit nozzle inserts are at various sizes.

12. The well screen of claim 11, wherein said sizes are larger in descending order from said outer member along said shunt tube.

13. A well screen for use with fluid in slurry in a flow stream, comprising:

a plurality of joints, each of said joints having-

a base pipe having openings through the wall thereof ;

an outer surface having a top and having a section mounted over said base pipe, some of said surface of said section being permeable to fluids and abating the flow of particulate material, said outer surface having standoff from said base pipe, to form an annulus between the said base pipe and said outer surface;

at least one section of exit nozzle chambers, said section placed over said base pipe and adjacent to said permeable outer surface section;

at least one shunt tube positioned inside said annulus and secured to the inside of said outer surface and extending axially along said base pipe adjacent to said permeable section of said outer surface;

said section of exit nozzle chambers secured to said outer surface, said nozzle chamber section having multiple exit ports circumferentially spaced around said nozzle chamber section, said exit nozzle chambers being connected to said shunt tube for communicating with the outside of said outer surface of said screen;

a coupling joining adjacent ones of said joints together forming a common manifold area, whereby said coupling permits said at least one shunt tube in one each of said joints being in fluid connection which is connected to said common manifold area and thereby in communication with said exit nozzle chambers and at least one shunt tube of the adjoining joints of said joint;

an outer member having an interior open to said shunt tube and mounted on said top of said outer surface, and forming annulus in the upper most joint of said joints between said outer member and said base pipe for joining adjacent ones of said joints and top of said outer surface with said open interior of said outer member, permitting fluid flow to said annulus from the interior of said outer member.

14. The well screen of claim 13 where said mechanism joining said joints includes:

a fluid means for fluid in slurry to return to the flow stream in said shunt tubes.

15. The well screen of claim 14 wherein said fluid means includes a box end at one end of said base pipe, said box end having threads for attachment to an adjacent one of said plurality of joints;

an external circumferential groove above said threads; and

a slotted plate covering said external circumferential groove.

16. The well screen of claim 13 where said mechanism includes connection means for joining adjacent ones of said joints, and the flow stream is in said base pipe and further including:

a fluid means for the fluid in slurry to return to the flow stream in said base pipe;

a slotted external concentric pipe positioned between said exit nozzle chamber that is the highest mounted and said threaded box, said slotted external concentric pipe forming an annulus with said inner concentric pipe and said threaded box and having a bored channel therein, said bored channel being in fluid connection with said annulus and in further fluid communication with the flow stream in said base pipe.

17. The well screen of claim 13 where there are a multiple number of said shunt tubes radially spaced around said base pipe within said annulus and extending along said base pipe in said permeable section of said outer surface and connected to said exit nozzle chamber sections of said outer surface.

18. A method for placement of gravel slurry for gravel packing an interval of a wellbore in the presence of a block by a sand bridge or void formed in a well annulus before the placement of the gravel slurry in the gravel packing is complete, the well annulus being formed between a tool, having a screen, with exit nozzle chambers placed at different points along the screen, inside the wellbore, which screen at least partially surrounds a base pipe of the tool forming a tube annulus, comprising the steps of:

A. providing conduits and the arrangement of conduits positioned between the base pipe and the screen in the tube annulus and connected to the exit nozzle chambers;

B. filling the well annulus with gravel slurry through the conduits until the well annulus is blocked;

C. after step B, continuing to flow the gravel slurry into the conduits in the tube annulus to the well annulus that is not blocked.

19. The method of claim 18 wherein the conduits are unperforated flow conduits.

20. The method of claim 18 wherein the conduits are the flow paths for the slurry.

21. The method of claim 18 wherein the conduits are shunt tubes.

22. The method of claim 18 wherein the conduits are round conduits.

23. The method of claim 18 wherein the flow paths for the slurry are spaced radially around the base pipe within the tube annulus.

24. The method of claim 18 wherein the gravel slurry is introduced interior to the tool.

25. The method of claim 18 wherein the well bore is sealed in its upper end by the tool preventing the flow of gravel slurry upward into the conduit.

26. The method of claim 18 wherein the gravel slurry flows through the interior of the tool and through a crossover tool to flow into the well annulus.

27. The method of claim 16 wherein the gravel slurry flows from the annulus through the screen to the shunt tubes and returns through the interior of the tool.

28. A method for placement of gravel slurry for gravel packing an interval in a well annulus of a wellbore, the well annulus being formed between the interior of the well and a tool, having a screen, with exit nozzle chambers placed at different points along the screen, inside the wellbore, which screen at least partially surrounds a base pipe of the tool forming a tube annulus, comprising the steps of:

A. providing conduits and the arrangement of conduits positioned between the base pipe and the screen in the tube annulus and connected to the exit nozzle chambers;

B. filling the well annulus with gravel slurry from the tube annulus through said exit nozzle chambers to the well annulus.

29. The method of claim 28 wherein the conduits are unperforated flow conduits.

30. The method of claim 28 wherein the conduits are primary flow paths.

31. The method of claim 28 wherein the conduits are shunt tubes.

32. The method of claim 28 wherein the conduits are round conduits.

33. The method of claim 28 wherein the primary flow paths are spaced radially around the base pipe within the tube annulus.

34. The method of claim 28 wherein the gravel slurry is introduced through the interior of the top concentric annulus.

35. The method of claim 28 wherein the well bore is sealed in its upper end by the tool preventing the flow of gravel slurry upward into the well annulus.

36. The method of claim 28 wherein the gravel slurry flows through the interior of the tool and through a crossover tool to flow into the top concentric annulus.

37. The method of claim 28 wherein the fluid of the gravel slurry flows to the shunt tubes out of the exit nozzles to the well annulus through the screen and returns through the interior of the tool.